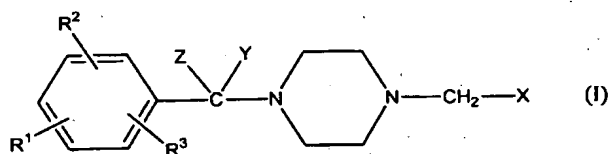


WHAT IS CLAIMED IS:

1. A method for treatment of a mammal threatened or afflicted by Alzheimer's disease, by administering to said mammal an effective amount of a compound of formula I:



wherein:

a) R^1 , R^2 and R^3 are individually H, OH, halo, (C_1-C_6) alkyl, (C_1-C_6) alkoxy, (C_3-C_6) cycloalkyl, (C_3-C_6) cycloalkyl $((C_1-C_6)$ alkyl), (C_2-C_6) alkenyl, (C_2-C_6) alkynyl, (C_1-C_6) alkanoyl, halo (C_1-C_6) alkyl, hydroxy (C_1-C_6) alkyl, (C_1-C_6) alkoxycarbonyl, (C_1-C_6) alkylthio, thio (C_1-C_6) alkyl, (C_1-C_6) alkanoyloxy, $N(R^6)(R^7)$ wherein R^6 and R^7 are individually H, O, (C_1-C_6) alkyl, (C_3-C_6) cycloalkyl, (C_3-C_6) cycloalkyl (C_1-C_6) alkyl, phenyl or benzyl, or R^6 and R^7 , together with the N to which they are attached form a 5- or 6-membered ring, optionally comprising 1-2 S, N(R^6) or nonperoxide O, or R^1 and R^2 together are methylenedioxy;

b) Y and Z together are =O, $-O(CH_2)_mO-$ or $-(CH_2)_m-$ wherein m is 2-4, or Y is H and Z is OR^9 or SR^9 , wherein R^9 is H or (C_1-C_4) alkyl;

c) X is (C_1-C_6) alkyl, (C_1-C_6) alkoxy, hydroxyl (C_1-C_6) alkyl (C_3-C_{12}) alkenyl, (C_2-C_6) alkynyl, carboxy, (C_1-C_6) alkoxycarbonyl, thio (C_1-C_6) alkyl, (C_3-C_{12}) heterocyclo, (C_3-C_{12}) heterocycloalkyl (C_1-C_6) alkyl, aryl or heteroaryl, optionally substituted by 1, 2 or 3 R^1 ;

and the pharmaceutically acceptable salts thereof.

2. The method of claim 1 wherein the amount is effective to inhibit $A\beta$ peptide-induced neurotoxicity.
3. The method of claims 1 or 2 wherein the amount is effective to inhibit $A\beta_{1-42}$ neurotoxicity.

4. The method of claims 1-3 wherein the amount is effective to inhibit glutamate-induced neurotoxicity in said mammal.
5. The method of claims 1-4 wherein the amount is effective to maintain ATP levels in neuronal cells in said mammal.
6. The method of claim 5 wherein the cells are contacted *in vitro*.
7. The method of claim 5 wherein the cells are contacted *in vivo*.
8. The method of claims 1-5 or 7 wherein the compound of formula I is administered to a human.
9. The method of claim 8 wherein the human is in an early stage of AD.
10. The method of claim 8 wherein the human is an AD patient.
11. The method of claims 1-10 wherein R^1 , R^2 or R^3 is $N(R^6)(R^7)$.
12. The method of claims 1-11 wherein R^2 is (C_1-C_6) alkoxy.
13. The method of claims 1-12 wherein R^3 is (C_1-C_6) alkoxy.
14. The method of claims 1-10 or 12-13 wherein each of R^1 , R^2 and R^3 is (C_1-C_3) alkoxy.
15. The method of claims 1-14 wherein Y and Z together are =O.
16. The method of claims 1-14 wherein Y is H and Z is OH.
17. The method of claims 1-16 wherein X is (C_1-C_6) alkyl.

18. Method of claims 1-17 wherein X is CH₃.
19. The method of claims 1-5 and 7-18 wherein the compound of formula I is administered orally.
20. The method of claims 1-5 and 7-18 wherein the compound of formula I is administered parenterally.
21. The method of claims 1-20 wherein the compound of formula (I) is administered in combination with a pharmaceutically acceptable carrier.
22. The method of claim 21 wherein the carrier is a liquid, suspension or gel.
23. The method of claim 21 wherein the carrier is a solid.
24. The method of claims 1-23 wherein the compound of formula I is [(2,3,4-trimethoxy)phenyl]-[4-ethylpiperazin-1-yl] methanone.
25. A composition comprising a compound of formula (I) in combination with a pharmaceutically-acceptable carrier.
26. A therapeutic method to treat a neuropathy that involves a glutamate network or pathway hyperactivity comprising administering to a mammal threatened with, or afflicted by, said neuropathy, an effective amount of a compound of formula (I).
27. Use of a compound of formula (I) to prepare a medicament to treat at least one AD symptom.